



2013 Session

Exhibit: 4

This exhibit is several booklet & pamphlets that cannot be scanned in its entirety therefore only a copy of the front page and the table of contents have been scanned to aid you in your research.

The original exhibits are on file at the Montana Historical Society and may be viewed there.

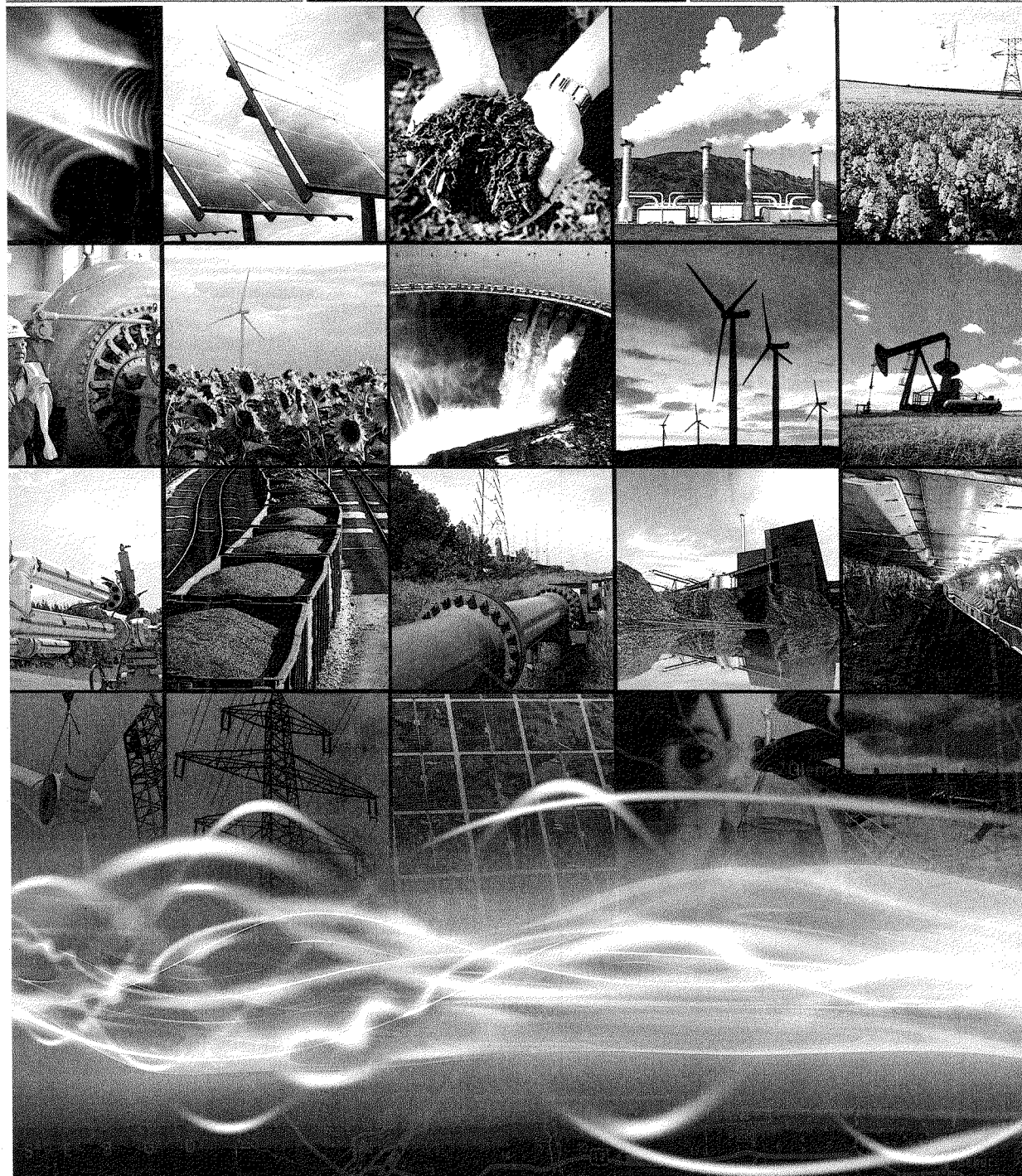
**Montana Historical Society
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Helena MT 59620-1201
2013 Legislative Scanner Susie Hamilton**

EXHIBIT 4

DATE 1/22/13

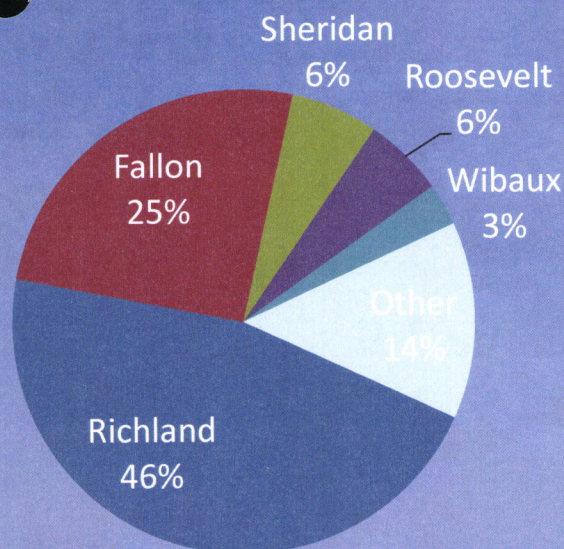
HB 2

MONTANA MEANS BUSINESS



Energy Promotion and Development
MONTANA DEPARTMENT OF COMMERCE

TOTAL OIL PRODUCTION BY COUNTY 2000-2011



Montana Oil Quick Facts (2011)

Production:	24 million bbls
Total Producing Wells:	4,515 wells
Average Daily Production/Well:	17.4 bbls
Barrels Refined:	61 million bbls
Wells Completed:	100 wells

According to Montana Board of Oil and Gas Conservation statistics exactly half—twenty-eight of fifty-six—Montana counties have produced oil in at least one of the past twelve years. As indicated in the pie chart above, the top two oil producing counties, Richland and Fallon, account for more than 70% of all production in the state over this time period. Sheridan, Roosevelt, and Wibaux counties represent about half of the remaining production (15% of total production) and the other 23 oil producing counties account for the balance of production (about 14%).

The most current county level production data for 2012 indicates a fairly similar distribution so far this year as in the previous twelve years. The exceptions are Roosevelt County seeing an increase and Fallon county seeing a slight decrease in relative production. Overall, production is up nearly 5% in Montana comparing the first 8 months of 2011 with 2012.

Commodity Futures Prices, Cushing, OK	10/8/2012	10/9/2012	10/10/2012	10/11/2012	10/12/2012	10/15/2012	10/16/2012
Crude Oil Futures (\$/barrel)	89.33	92.39	91.25	92.07	91.86	91.85	92.09
%Chg from Prior	-0.62% ↓	3.31% ↑	-1.25% ↓	0.89% ↑	-0.23% ↓	-0.01% ↓	0.26% ↑
Natural Gas Futures (\$/million BTUs)	3.403	3.467	3.475	3.604	3.611	3.486	3.437
%Chg from Prior	0.21% ↑	1.85% ↑	0.23% ↑	3.58% ↑	0.19% ↑	-3.59% ↓	-1.43% ↓
Updated data released on a weekly basis.							
Source: eia							

Commodity prices provided by the Montana Census and Economic Information Center. Data is regularly updated online at ceic.mt.gov/economicdashboard

Published by Montana CEIC.

Resources:

MT Department of Commerce: [Energy Promotion and Development Division](#) & [Census and Economic Information Center](#)
 MT DNRC: Oil and Gas Conservation Division, [Annual Review 2011](#)

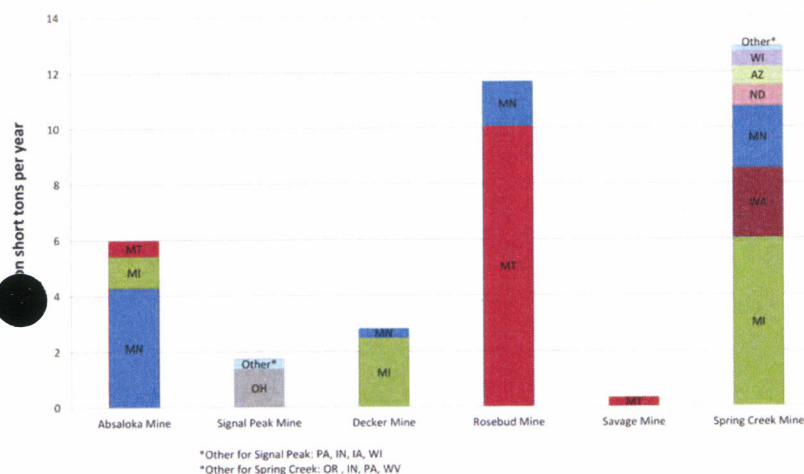


MONTANA COAL MOVED PRIMARILY TO UPPER MIDWEST, EXPORTS INCREASING

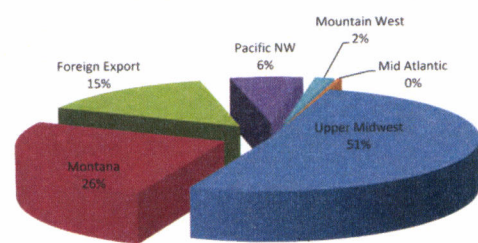
In 2010, Montana's six coal mines produced a total of 44.7 million short-tons of coal with more than half of that production going to utilities, industrial plants and commercial customers in the Upper Midwestern states of Michigan, Minnesota, North Dakota, Ohio, Wisconsin, Indiana, and Iowa. Approximately a quarter of all coal dug in Montana is burned in-state to produce electricity with slightly more than 10 million tons burned at the Colstrip power plant, the Hardin Generating Station utilized 564,000 tons of Montana coal and the Lewis & Clark Station burned 310,000 tons of Montana lignite (lower quality) coal in 2010.

Montana coal has increasingly been shipped internationally, with the US Energy Information Administration (EIA) estimating 6.4¹ million tons of Montana coal exported in 2010, up from 2.1 million tons in 2009, 1.5 million in 2008, and 0.4 million in 2007.

Montana Coal Deliveries to US States by Mine (2010)



2010 Montana Coal Destination by Region



New energy information page is now available! The Energy Promotion and Development Division has partnered with the Montana Census and Economic Information Center to bring you updated energy information on the CEIC website. [Click Here.](#)

Sources:

U.S. Energy Information Administration, Annual Coal Distribution Report 2010

¹The 6.4 million tons consists of 3.9 million tons exported by mines and 2.5 million tons exported by brokers and traders.

Note: Data for this analysis came from multiple sources—United States Energy Information Administration's (EIA) Annual Coal Distribution Report and the Montana Department of Environmental Quality— which using different accounting methodologies and sources for their information. All attempts have been made to reconcile differences and portray production and distribution as accurately as possible.



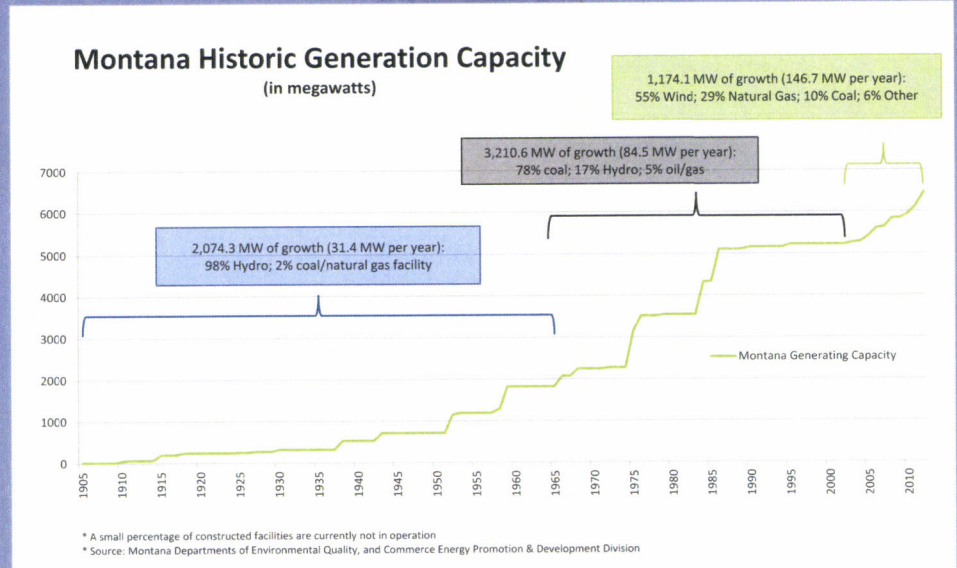
MONTANA HAS A LONG HISTORY OF DIVERSE ENERGY GENERATION

Montana's first major generation facilities were powered by hydroelectric turbines. Coal, pet coke and other fossil fuels came on line as the state's other abundant resources became available. The first chart illustrates that beginning in 1906 hydroelectricity was responsible for 98% of the state's generation growth. From the early 1970s through 2004 through 2004 coal-fired electricity generation was responsible for 78% of added capacity while in the past eight years 55% of growth has come from wind, 29% natural gas, and 10% coal.

While Montana's energy development has become more diverse over time, hydroelectric and coal-fired facilities

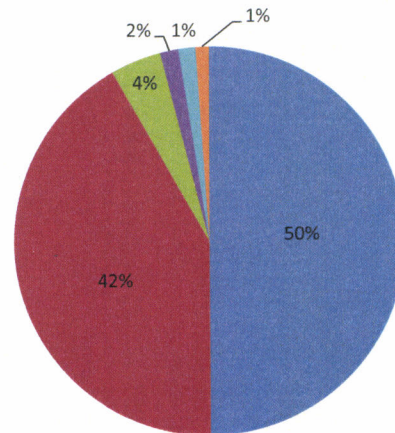
continue to produce the majority of electricity in Montana. The state's

abundance of coal and water both provide for a secure, stable, and affordable electricity supply. These resources have been able to provide a base load of power to Montanans and our neighbors for generations. Renewable Portfolio Standards in the west have fostered development of Montana's renewable energy resources, further diversifying the generation portfolio. The table below illustrates Montana's electrical generation by energy source in 2011.



2011 Electricity Production by Source

■ Coal ■ Hydroelectric ■ Wind ■ Petroleum ■ Natural Gas ■ Other



Sources:

- Department of Environmental Quality, Electricity Tables Workbook-2011
<http://deq.mt.gov/Energy/HistoricalEnergy/default.mcp>
- Energy Information Administration, Net Generation by State
<http://www.eia.gov/electricity/data/state>



Montana Wind Farms Generating in 7 Montana Counties

MONTANA WIND FARMS



210 MW; GLACIER - 2009



189 MW; RIM ROCK- 2012



135 MW; JUDITH GAP - 2005



40 MW; SPION KOP - 2012



30 MW; DIAMOND WILLOW - 2010



20 MW; MUSSELHELL- 2012



9.6 MW; GORDON BUTTE - 2012



9 MW; HORSESHOE BEND - 2006



2.8 MW; MARTINSDALE - 2007

TOTAL: 645.4 MW

Montana's first commercial scale wind farms were installed in 2005, the same year the Montana Renewable Power Production and Rural Economic Development Act established a renewable portfolio standard for the state. Further wind development has been driven by renewable portfolio standards in other states across the west, primarily California's mandate for 33% renewable energy by 2020.

The opportunity for wind development in Montana is greater than any other state in the West and one of the best in the nation with potential wind development sites spread throughout the state. By the end of this year, Montana will have 646 MW of installed capacity representing an increase of 67% in one year. These projects are located in seven counties: Cascade, Fallon, Glacier, Judith Basin, Meagher, Toole, and Wheatland.

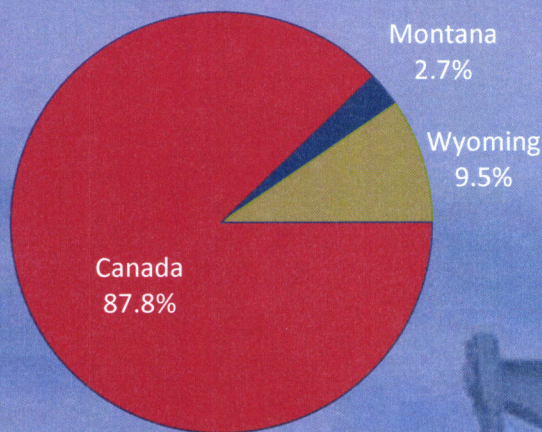
Note: Several of the wind projects were completed in two phases and the year noted above reflects the date of completion of the second phase or extension.



Montana Refineries Primarily Supplied by Canadian Crude

Montana is home to four operating oil refineries with a total refining capacity of approximately 183,000 barrels per day (bpd) or approximately 67 million barrels per year. In 2011, Montana refineries processed a total of 61.4 million barrels. To put that in context, last year Montana oil production totaled slightly more than 24 million barrels or approximately 66,000 bpd.

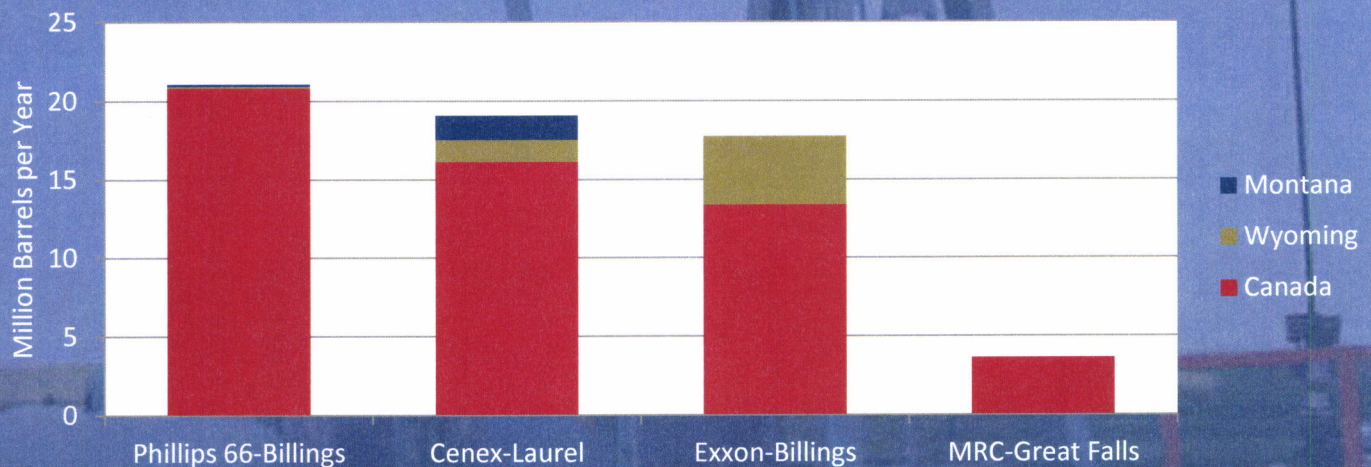
Source of Oil Received at Montana Refineries (2011)



The Phillips 66 (formerly ConocoPhillips) refinery in Billings has a capacity of 58,000 bpd and processes a mixture of heavy Canadian crude along with small amounts of domestic oil. Cenex Harvest States (CHS) operates a refinery in Laurel with a capacity of approximately 55,000 bpd that sources oil from Canada, Montana and Wyoming. The ExxonMobil Billings Refinery has a capacity of approximately 60,000 bpd and processes a mix of Wyoming and Canadian sourced oil. In October of 2012, Calumet Specialty Products purchased the 10,000 bpd Montana Refining Company (MRC) for approximately \$200 million and processes Alberta heavy crude oil almost exclusively.

Oil Refined in Montana (2011)

Total: 61.4 million bbls



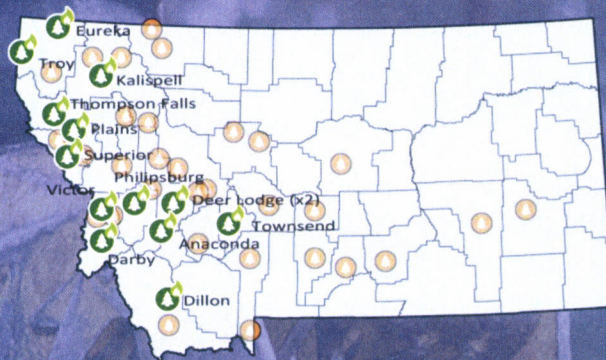
Sources: Montana DNRC, Board of Oil and Gas Conservation, [2011 Annual Review](#) (PDF)



Montana's Woody Biomass Projects-A Proven Return on Investment

The Fuels for Schools and Beyond Community Wood Energy Program is managed by the Forestry Division of the Montana Department of Natural Resources and Conservation. The program offers assistance for developing wood biomass energy projects (thermal, electric, and combined heat and power), including financial assistance for feasibility studies, engineering and equipment costs. Since its inception in 2003, more than 12,000 tons per year of woody biomass have been used displacing close to one million gallons of fuel oil, propane and natural gas saving approximately \$1 million per year. This has yielded a strong return on investment as \$3.7 million in federal grants have been invested in 13 projects in the state.

While the majority of the operating facilities are located in the heavily forested western third of the state, the program has conducted feasibility studies in southeastern Montana as well. Due to the low cost of natural gas at present, communities outside of natural gas distribution networks show the greatest opportunity to reduce heating and energy costs through installation of biomass systems.



Operating Biomass Facility



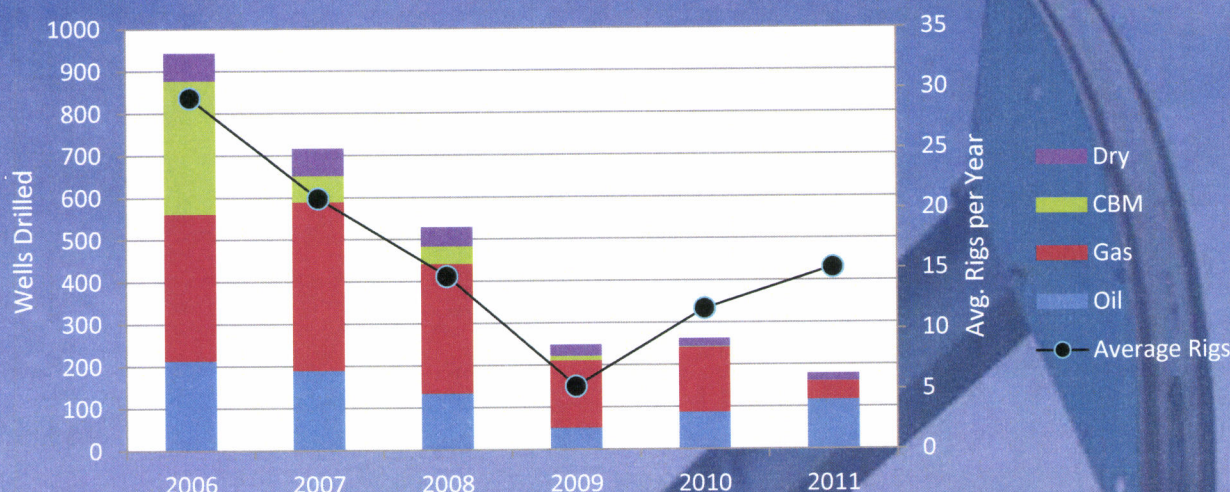
Pre-Feasibility conducted for a Biomass Facility

Biomass materials can vary greatly and come from a variety of sources. Chips, pellets and cordwood are all being used as fuels in the facilities around the state. Darby School has created a Community Partnership that offers a tax break to local property owners who donate their forest thinnings to the school district for fuel. The formula is a win, win, win as the school saves money, the taxpayer saves money, and hazardous and unhealthy trees are removed from the forest and urban interface—reducing fire hazard and improving forest health. To learn more about the program and to learn whether your facility may be a good prospect for biomass integration go to the DNRC website [here](#), or contact Julie Kies at (406) 542-4280.

	Facility	Install Date	Type of Biomass Fuel Burned	Fossil Fuel Displaced	Estimated Annual Biomass Usage (Tons)	2009 Fuel Cost Savings	Boiler Heat Capacity (MMBTU)	Total Project Cost
1	Darby Public Schools	2003	chips	fuel oil	850	\$111,269	3	\$650,000
2	Victor Public Schools	2004	chips	natural gas	500	N/A	4.9	\$590,000
3	Thompson Falls Schools	2005	chips	fuel oil	400	\$31,703	1.6	\$455,000
4	Philipsburg Schools	2005	chips	natural gas	580	\$39,889	5.1	\$697,000
5	Glacier High School, Kalispell	2007	chips	natural gas	1,000	\$23,958	6	\$545,000
6	U of Montana - Western	2007	chips	natural gas	3,800	\$168,420	12	\$1,423,000
7	Townsend School District	2007	pellets	fuel oil, propane	250	\$22,443	0.68	\$425,000
9	Eureka Public Schools	2007	chips	fuel oil, propane	960	\$78,539	5	\$1,320,000
8	Troy Public Schools	2008	pellets	fuel oil	60	\$6,708	1	\$299,000
10	Deer Lodge Central Park Center	2009	chips	natural gas	730	N/A	1.5	\$797,000
11	DNRC Anaconda Unit Office	2011	cordwood	propane	20	N/A	0.3	\$36,000
12	Treasure State Correctional Training Center, Deerlodge	2012	cordwood	propane	120	Est. \$24,000	TBD	\$327,000
13	Clark Fork Valley Hospital, Plains	2012	pellets	propane	200	Est. \$26,000	2	\$334,000
14	Mineral Community Hospital, Superior	2012	pellets	fuel oil, propane	200	N/A	1	\$450,000



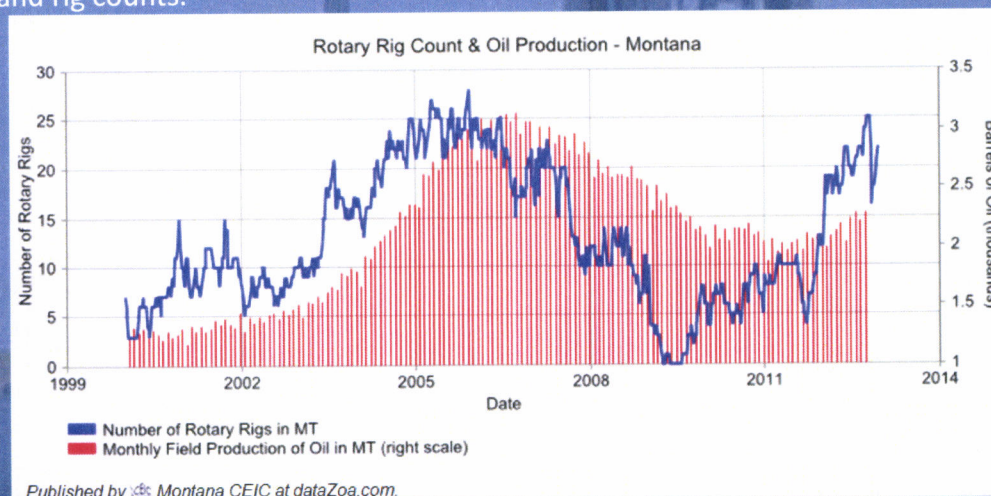
Well Completions Generally Track Rig Counts



The number of active drilling rigs, specialized equipment used to drill oil & gas wells, provides clues on the expected number of well completions along with an indication of demand for businesses serving the oil and gas drilling industry. The number of drilling rigs in Montana over the past 6 years has been highly correlated with the number of completed wells although in the past two years well completions have not increased directly in proportion to increases in drilling rigs.

One likely explanation for the decreased ratio of completed wells to drilling rigs in 2010 and 2011 is the increased focus on drilling horizontal oil wells which take longer to complete than traditional gas or coal bed methane (CBM) wells. Oil wells represented one-third of all wells in 2010 and two-thirds in 2011, up from approximately one-fourth in the previous years. While well completion numbers are not fully reported for 2012, the rig count for the year is likely to be approximately 23 rigs, higher than any year since 2006.

The chart below is one of many energy related graphics available on the Montana Census and Economic Information's [Energy Quick Stats website](#). Click the image below to link to additional information on regional oil and gas production and rig counts.



Resources:

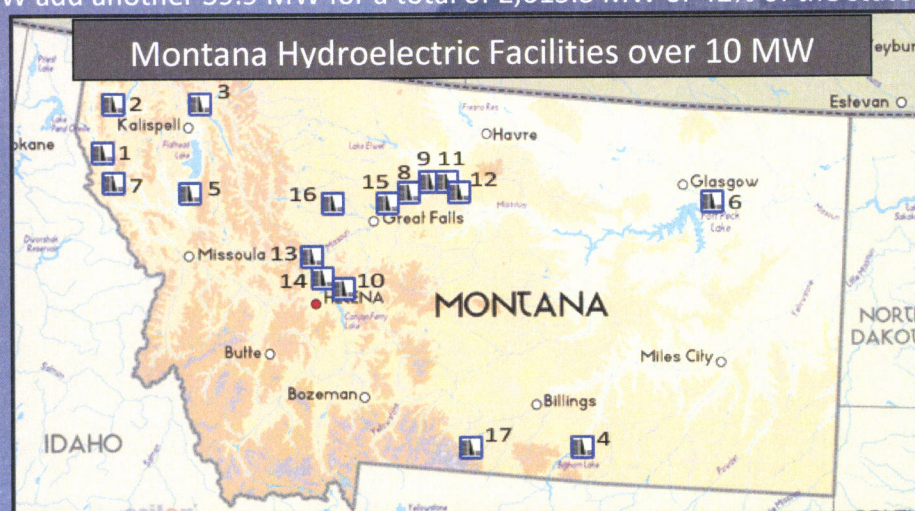
Well Completions Statistics from MT DNRC: Oil and Gas Conservation Division, [Online Oil and Gas Information System](#)

Rig Count Statistics from Baker Hughes, Inc: [Interactive Rotary Rig Count](#)



Hydro: Montana's Historic Power Source

Montana's history of hydroelectric generation dates back to the turn of the 20th century. The state's abundant headwaters pouring east, west and north off the Rocky Mountains provide a steady resource for electrical generation. The majority of these facilities were built decades ago. However, new technologies and turbine design have facilitated increased generation by upgrading older facilities; Rainbow Dam downstream of Great Falls recently added 25 MW of capacity. Hydroelectric development has taken a dramatic turn from a century ago as today some dams are being removed from waterways for ecological and environmental reasons. However, upgrades and incremental generation projects continue to come online. Irrigation canals like that of the Greenfield Irrigation District near Fairfield provide an opportunity for electrical generation without impacting water flows. The facilities shown on the map below represent 2,575.4 MW of nameplate capacity; hydroelectric facilities under 10 MW add another 39.9 MW for a total of 2,615.3 MW or 42% of the state's nameplate capacity.



	Hydro Facility	Owner	River	Const. Date	MW
1	Noxon Rapids	Avista	Clark Fork	1959	532.4
2	Libby	Corps of Engineers	Kootenai	1975	525
3	Hungry Horse	Bureau of Reclamation	S.F. Flathead	1952	428
4	Yellowtail	Bureau of Reclamation	Big Horn	1966	250
5	Kerr	PPL Montana	Flathead	1938	207.6
6	Fort Peck	Corps of Engineers	Missouri	1943	185.3
7	Thompson Falls	PPL Montana	Clark Fork	1915	87.1
8	Rainbow	PPL Montana	Missouri	1910	61.6
9	Cochrane	PPL Montana	Missouri	1958	60.4
10	Canyon Ferry	Bureau of Reclamation	Missouri	1953	49.8
11	Ryan	PPL Montana	Missouri	1915	48
12	Morony	PPL Montana	Missouri	1930	45
13	Holter	PPL Montana	Missouri	1918	38.4
14	Hauser	PPL Montana	Missouri	1911	17
15	Black Eagle	PPL Montana	Missouri	1927	16.8
16	Turnbull	Turnbull Hydro LLC	Greenfields Irrigation Canal	2011	13
17	Mystic	PPL Montana	West Rosebud Creek	1925	10



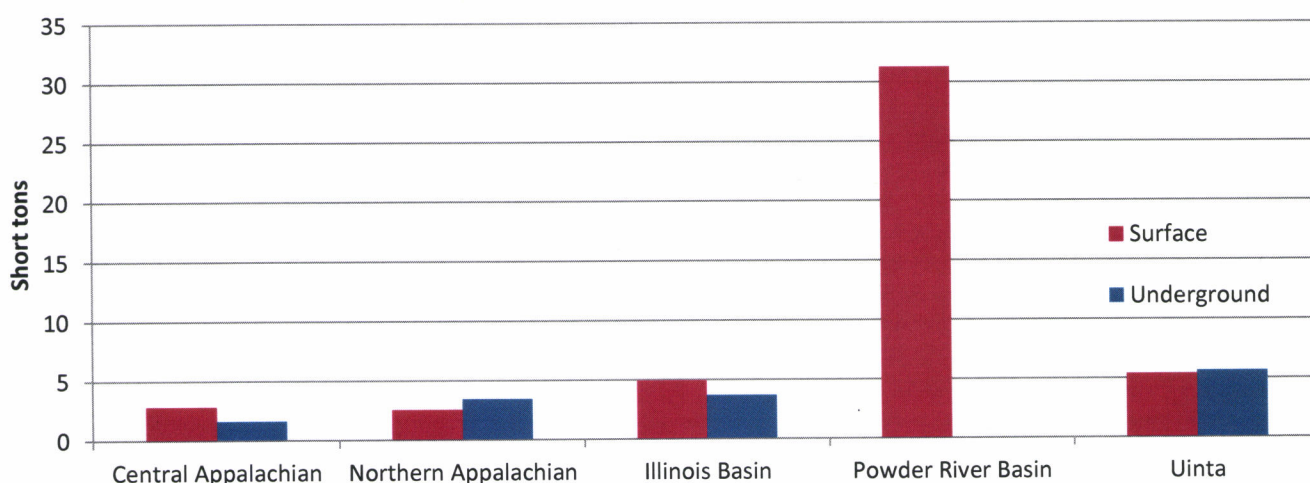
Powder River Basin Coal: Accessible and Affordable

Prices of Domestic Coal

	Price/ ton	Price/ million btu
Powder River Basin 8,800 btu/lb	\$10.45	\$0.59
Uinta Basin 11,700 btu/lb	\$35.85	\$1.53
Illinois Basin 11,800 btu/lb	\$47.90	\$2.03
Northern Appalachia 13,000 btu/lb	\$63.10	\$2.43
Central Appalachia 12,500 btu/lb	\$68.05	\$2.72

The coal in the Powder River Basin underlying southeast Montana and northeast Wyoming are some of the most accessible and lowest cost reserves in the world. In 2011, it took one employee-hour to produce 31.3 tons of Powder River Basin (PRB) coal, across all basins in the United States the average was 5.2 tons per employee-hour. Thanks in part to this high productivity, PRB coal has been the lowest priced domestic coal when measured on both a per ton basis and on its heating value (million btu).

Coal Production per Employee per Hour



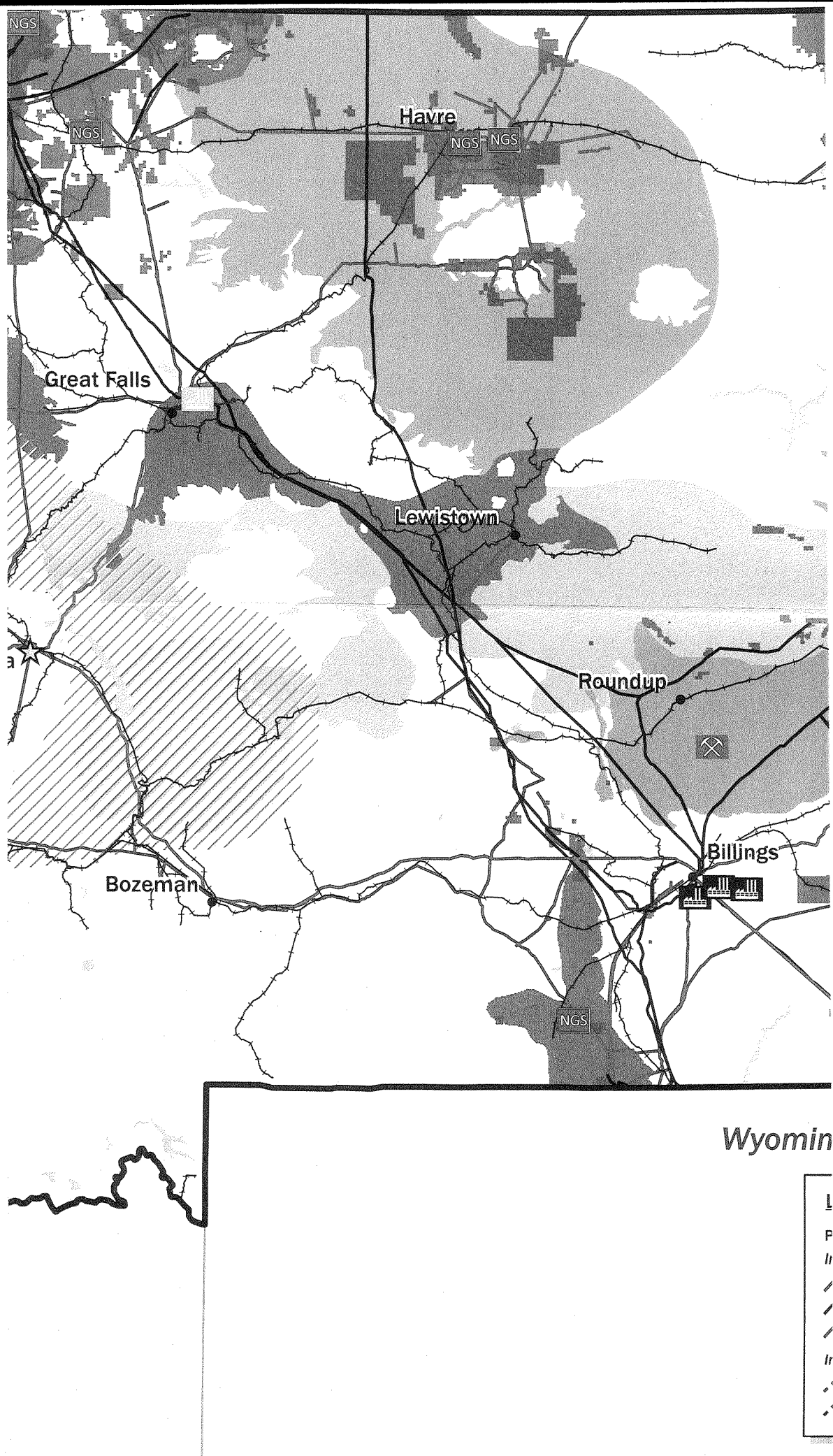
Calculated by dividing total coal production by the total labor hours worked by all employees engaged in production, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers

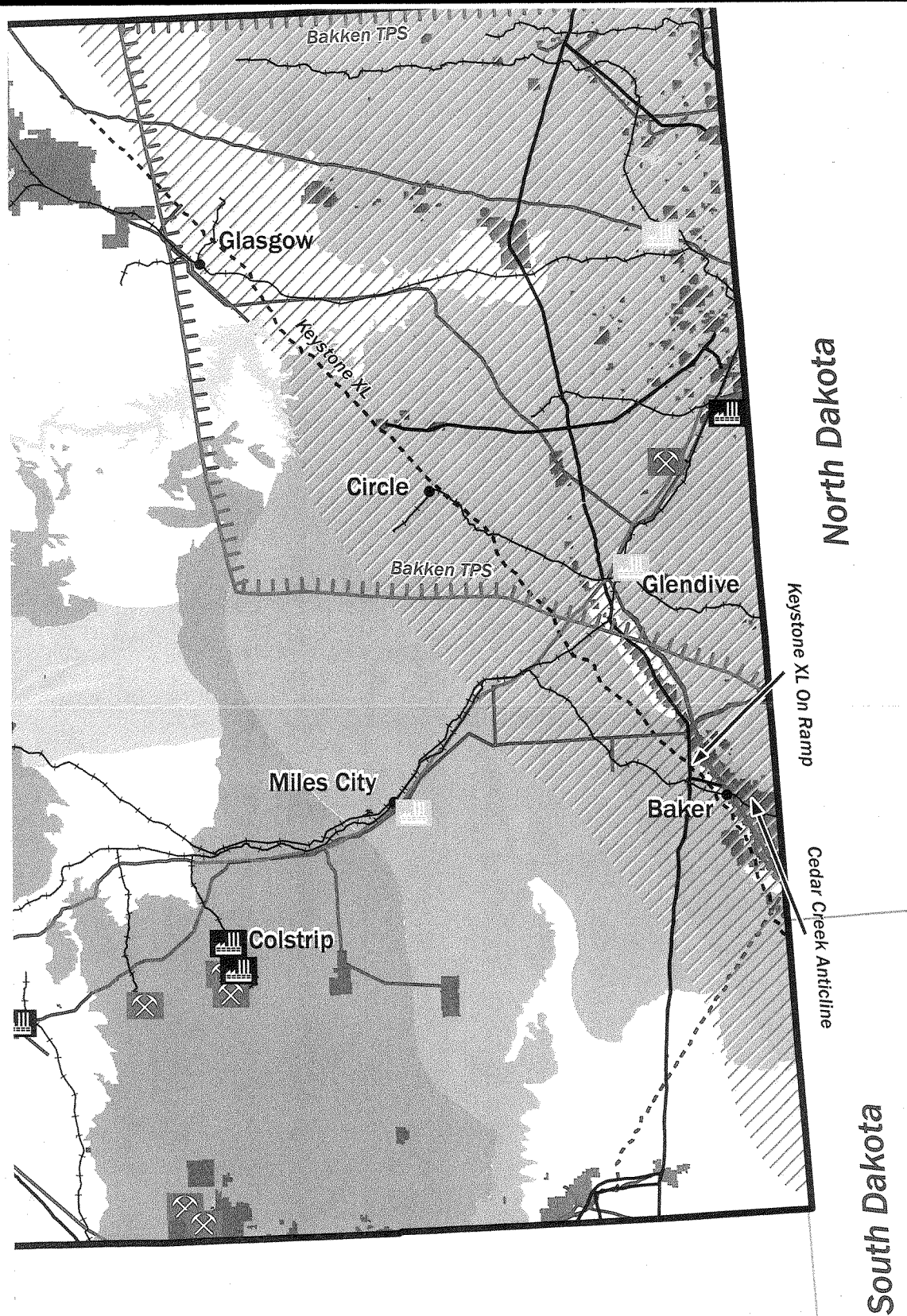
Resources:

Coal Prices from US EIA, January 4, 2013: [Coal News and Markets](#)

Coal Productivity from US EIA: [Annual Coal Report 2011](#)







Legend

elines
ervice

- Natural Gas
- Crude Oil
- Refined Oil

rogress

- Natural Gas
- Crude Oil

Coal

Coal Mines

Coal Shale Deposits

Bituminous

Sub-bituminous

Lignite

Oil-shale

Railroads

Oil & Gas

Bakken TPS

Oil & Gas Fields

Shale Gas Plays

Shale Gas Basins

NGS Natural Gas Storage Units

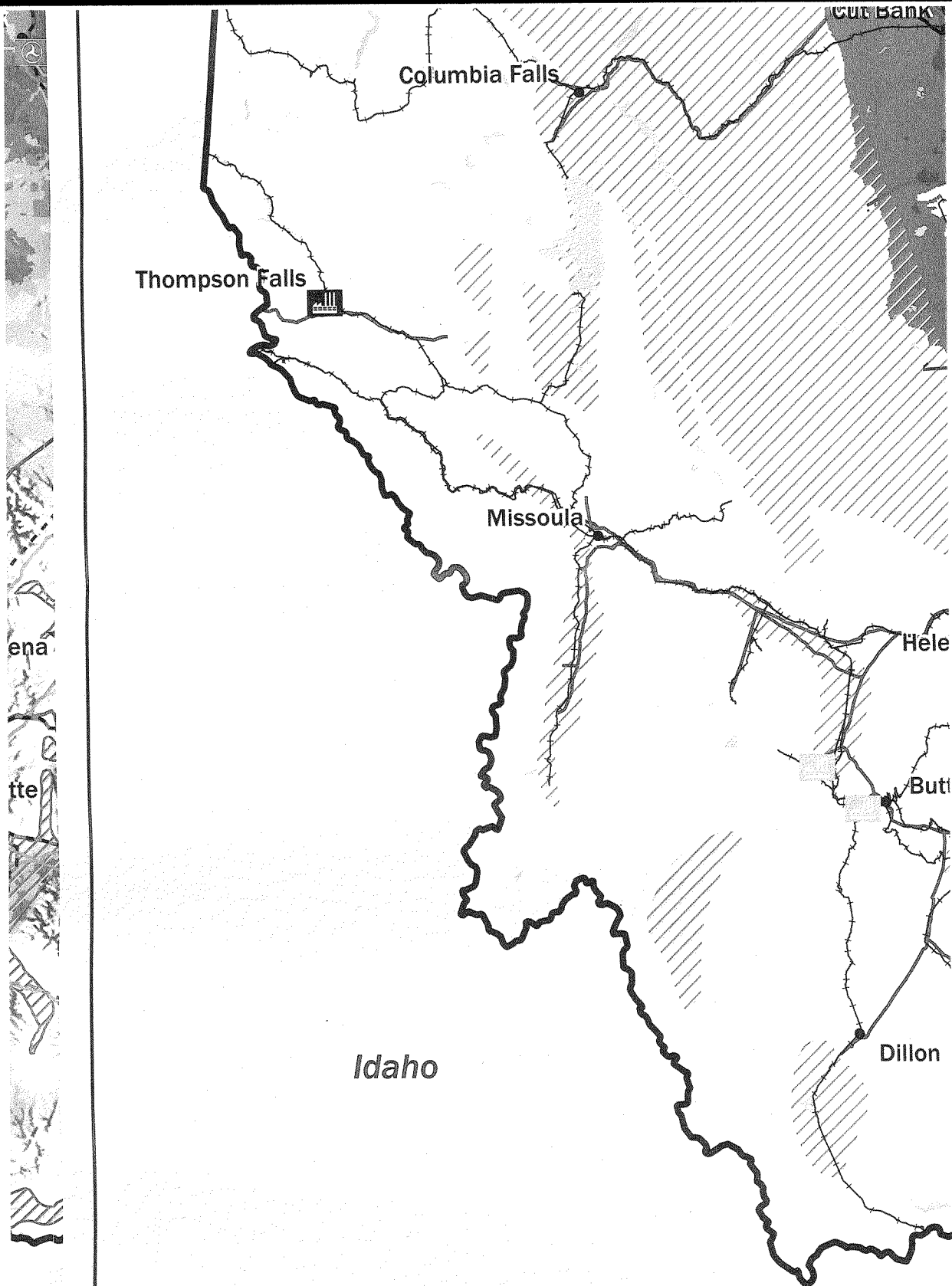
Power Plants

Coal

Natural Gas

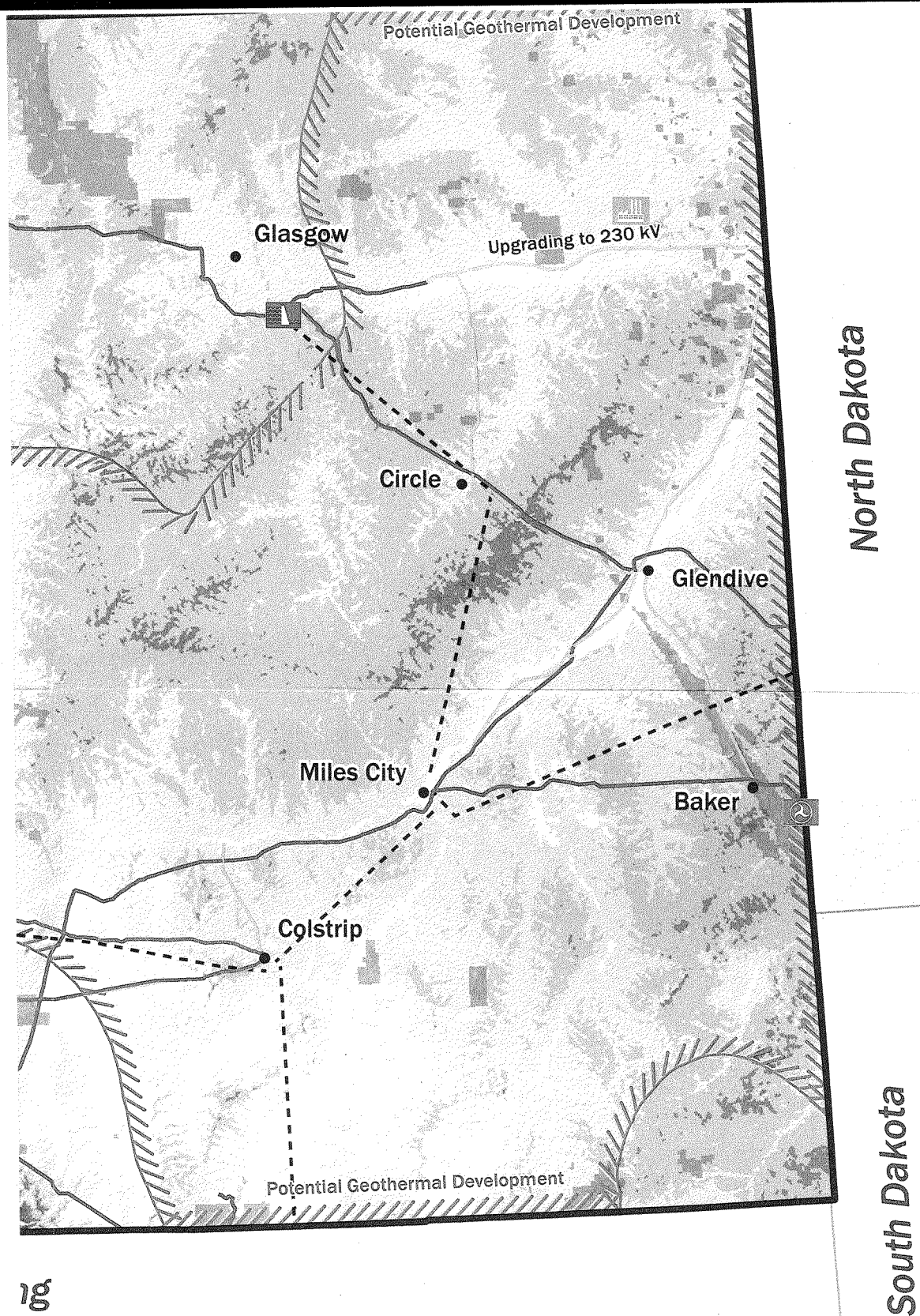
0 5 10 20 30 40 Miles



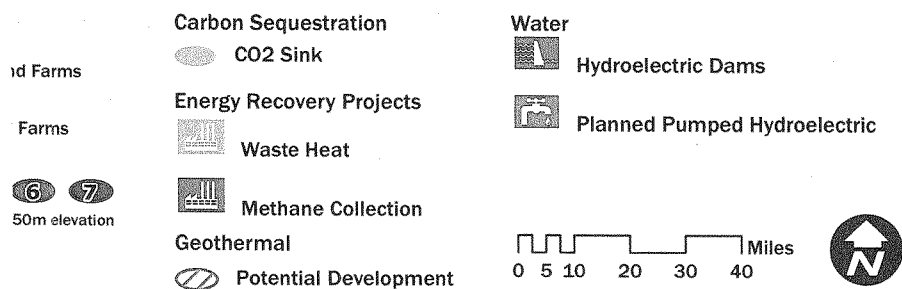


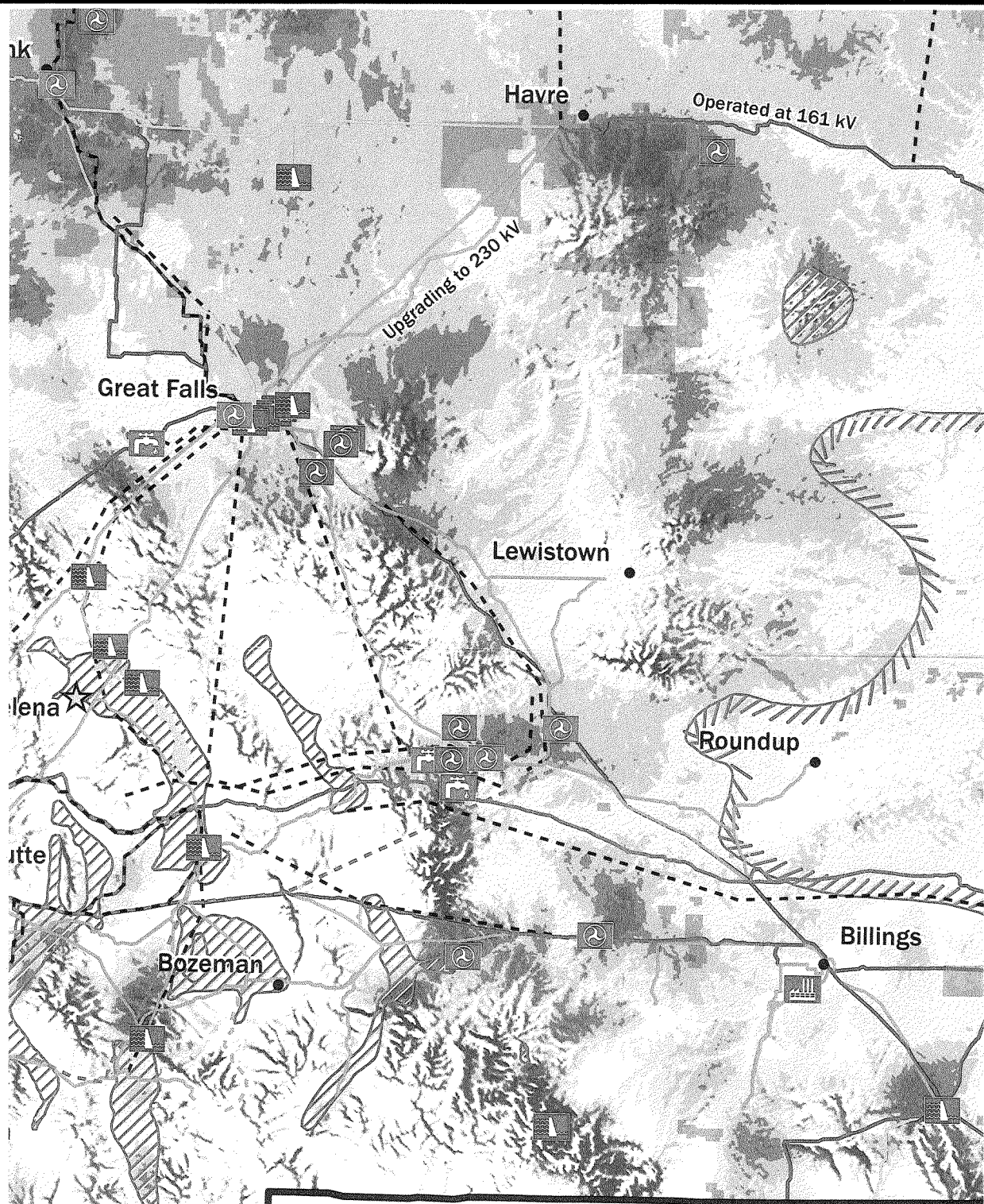
Map Sources

Pipelines: Department of Environmental Quality
 Coal Mines: Department of Environmental Quality
 Coal Shale Deposits: Montana State University (1974)
 Bakken TPS (Bakken-Lodgepole Total Petroleum System): United States Geological Survey (2008)
 Oil & Gas Fields: Board of Oil & Gas Conservation
 Shale Gas Plays & Basins: US Energy Information Administration
 Coal Power Plants: Department of Environmental Quality
 Natural Gas Power Plants: Department of Environmental Quality
 Natural Gas Storage Units: Board of Oil & Gas Conservation



ig





Wyomin

Legend

Transmission Lines

In Service

In Progress

Being Planned

500 kv

500 kv

500 kv (DC)

230 kv

230 kv

161 kv

161 kv

115 kv

115 kv

Conceptual

100 kv

Wind



Operating Wind



Planned Wind

Wind Power Class

3

4

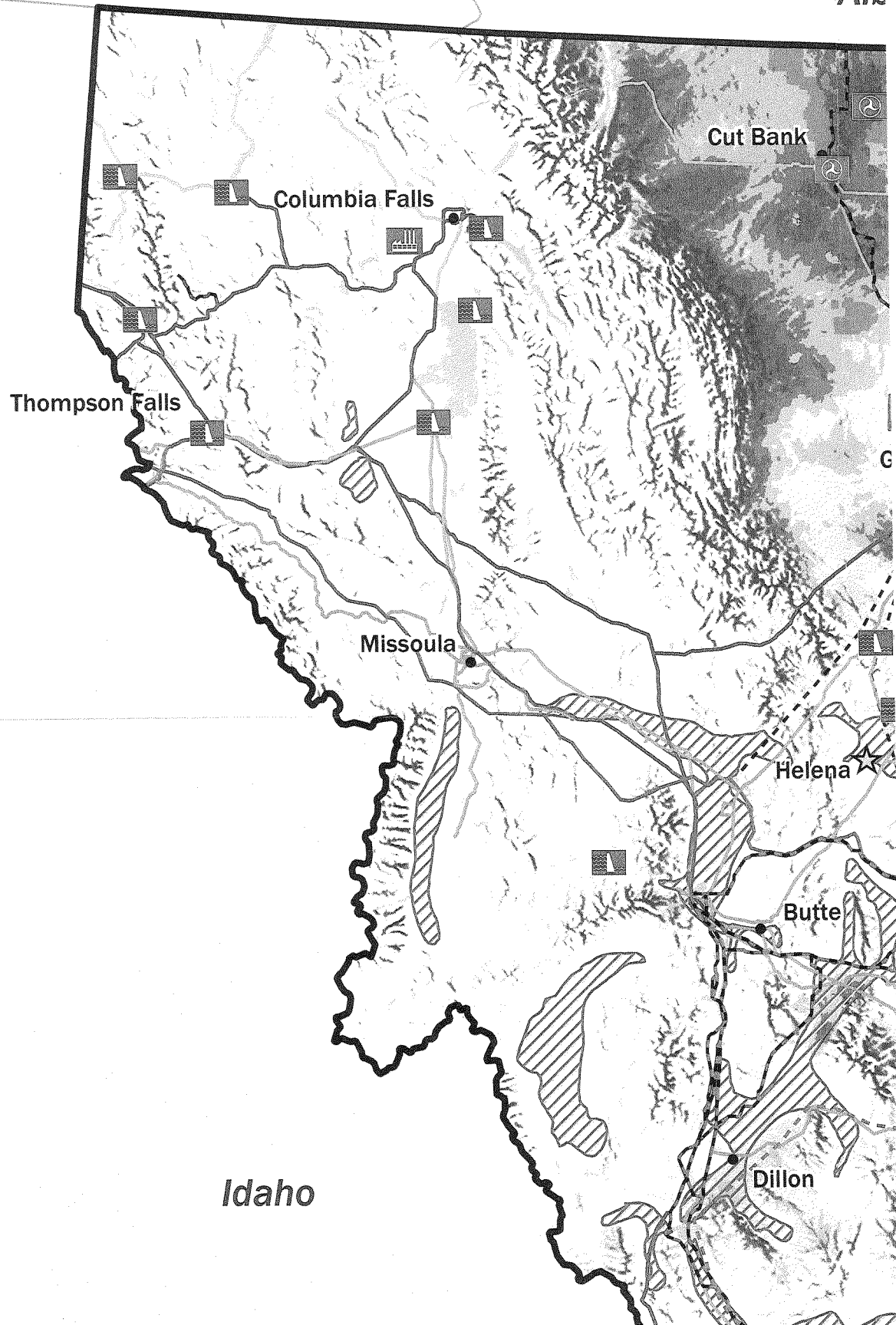
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Watts/square meter @ 50

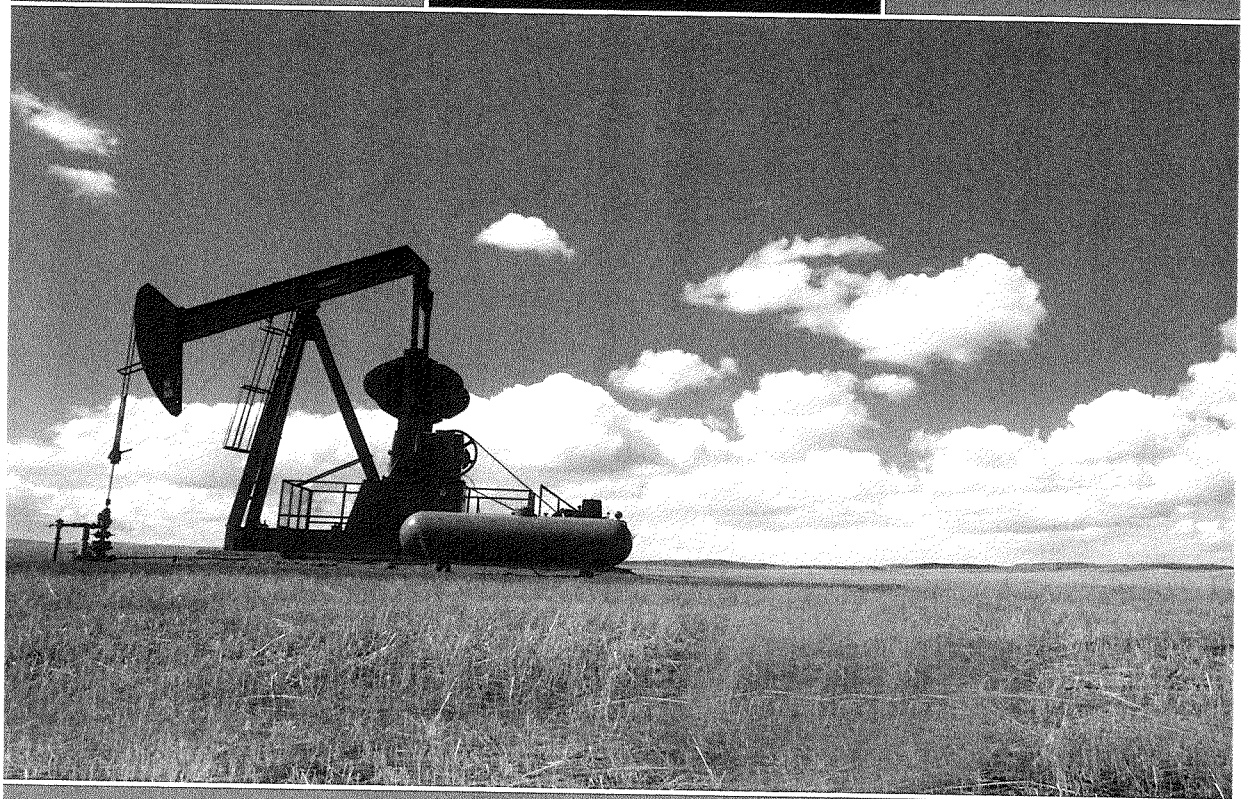
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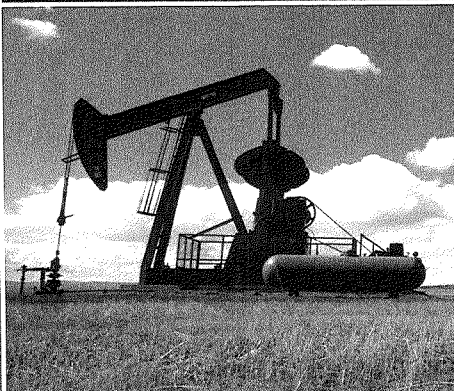


MONTANA IS OIL & GAS COUNTRY

**BOOSTING A STAPLE
MONTANA ENERGY INDUSTRY**



MONTANA MEANS BUSINESS



Governor's Office of Economic Development

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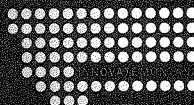
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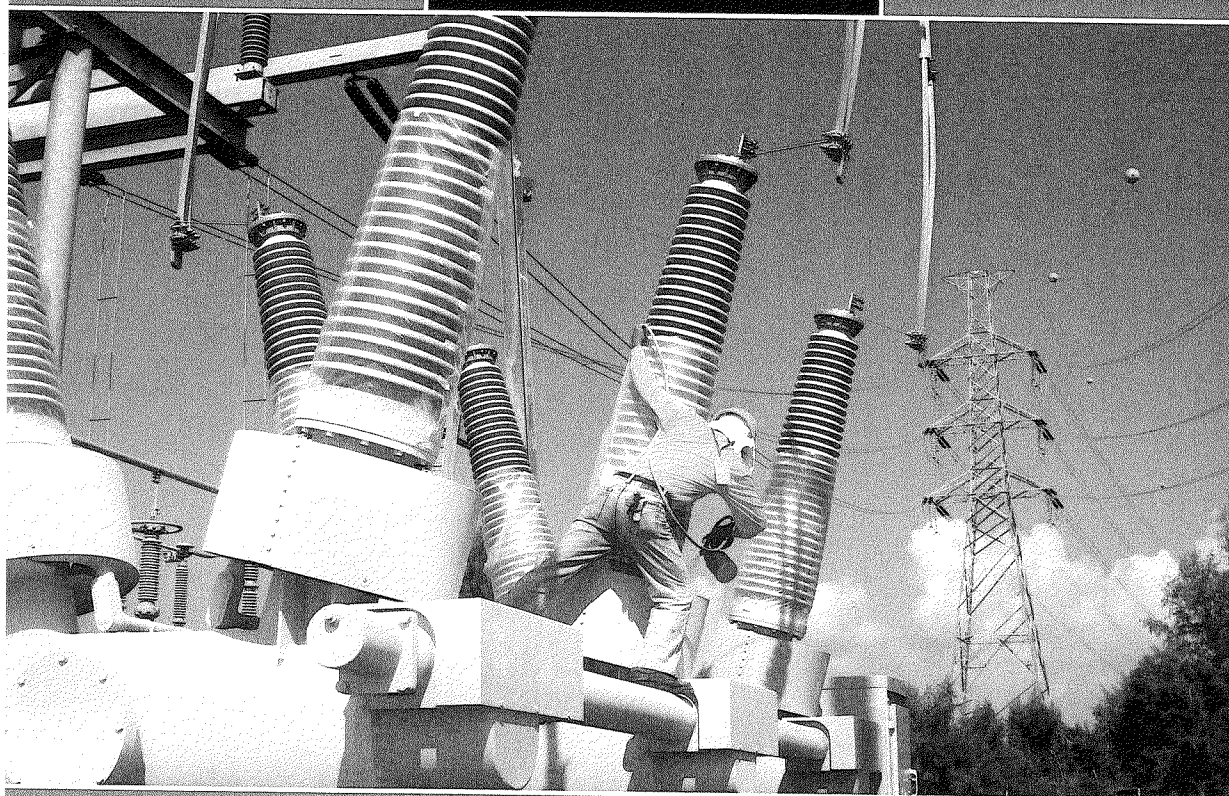
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MONTANA MEANS BUSINESS

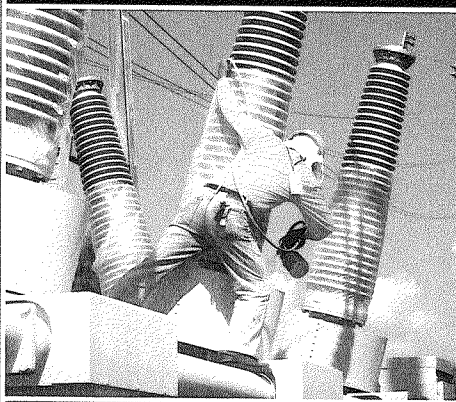


MONTANA ENERGY **TRANSMISSION**

Clean Energy and Transmission
Development in Montana and the West



MONTANA MEANS BUSINESS



Governor's Office of Economic Development

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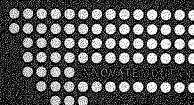
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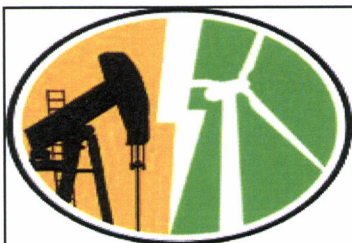
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Energy Promotion and Development Division

Montana Department of Commerce

- Created in 2007 to facilitate the development of Montana's vast resources in order to stimulate job creation and economic development
- Works with government agencies, businesses, economic development organizations, communities, regional energy planning entities and other energy coalitions
- The Division has worked on nearly 300 projects since its creation
- Division operates with 5 FTE

Division Work Highlights

- Private Business T/A – Examples, TransCanada, NaturEner, Enbridge and many more
- Represent Montana at energy planning forums including BPA, WAPA, WIEB, and WECC
- *Energy Currents* and EPDD newsletter
- Media ads and articles – *Coal People*, *Bakken Breakout*, *WindPower Monthly*, *Forest Business News* and more

Publications & Grants

EPDD publishes energy documents, supports local energy impact planning and obtained \$150,000 in federal energy grants – deliverables include:

- Montana Energy Development Portfolio
- CO2 Pipeline Route Study
- Montana Wind Report and Analysis
- MBMG Geothermal study
- Biomass Energy (2) Feasibility Studies
- CRDC energy planning grants

Economics of Energy Development Report

- Published December 2012 by Cardno – Entrix
- Compilations of economic impact studies of Montana energy projects
- Study estimates \$10.5 billion in capital investment, 28,000 direct jobs and 61,000 total jobs from proposed energy projects

Oil & Gas

- Total Direct Jobs-7500
- Total Direct Economic Output- \$9 billion
- Oil Production Taxes Paid (2011) \$215 million
- Property Taxes Paid-\$78 million
- Total wells Drilled-45,500
- Producing Oil Wells-4800
- Producing Gas Wells-65,000



Oil rig workers change pipe on a Bakken rig as they start drilling the horizontal leg at a Continental Resources' drilling site between Sidney and Culbertson - James Woodcock/Gazette Staff

Montana has a long history of responsible oil and gas exploration and production. Recent technological advancements have led to a revitalization of development of these staple energy resources under the Big Sky. The Montana oil industry provides a secure source of domestic energy and is responsible for thousands of good paying jobs and billions of dollars in economic activity.

Project Spotlight

Keystone XL

- Construction Jobs-1200
- Permanent Jobs-10
- Capital Investment-\$1.1 billion
- Annual State Taxes-\$60 million

EPDD Assistance

- Facilitated meetings in Billings and Denver between developer and Bakken producers to include Baker on-ramp in project
- Acted as liaison with the Governor's Office and the US State Department to keep permitting process on track



Bakken Well

"We have found the (Energy Promotion and Development) Division staffed by knowledgeable public servants who have been supportive of TransCanada's business development activities, who have been responsive to our requests for assistance and direction, and have been pro-active in promoting economic development in Montana."

-Scott Farris, Director of Government Relations, TransCanada

Coal

Approx. Employment

Mining-1165

Electric Facilities-475

Severance Taxes (2011)-\$55 million

Production (2011) - 42 million tons



Rosebud Mine, Colstrip

The State of Montana, through the EPDD is taking on a catalytic role to bring together agencies, developers, and other stakeholders to ensure further development of Montana's vast coal resources.

Project Spotlight

Ambre Energy

- Ambre entered the Montana coal industry in 2011 when they purchased 50% of the Decker coal mine in southern Montana. The mine currently employs 160 workers and Ambre plans on expanding operation to access the 121 million metric tons of coal reserves at the mine.

- EPDD Assistance

Facilitating discussions with state regulatory agencies on mine development, expansion and west coast coal port projects.



Decker coal mine, Montana

"The assistance provided to Ambre by your team in the Energy Promotion and Development Office of the Montana Department of Commerce has been invaluable. As a new participant in the US energy industry, the support provided by the Montana Government has been excellent and we appreciate greatly the guidance and assistance provided."
-Michael Mewing- President-Ambre Energy

Infrastructure

- Electrical Transmission Lines-7,000+ miles
- Energy Pipelines-15,000 miles

More than half of electricity produced in Montana is sold to customers outside the state. In addition to electricity, Montana exports substantial amounts of other energy resources including oil, gas and coal. All of these products require a robust energy infrastructure system including transmission lines, pipelines and railroads.



Project Spotlight

Montana Alberta Tie Ltd. (MATL)

- Construction Jobs-180
- Permanent Jobs-10
- Capital Investment-\$300 million

EPDD Assistance

- Facilitated coordination in permitting process between US Department of Energy and MT Department of Environmental Quality
- Brokered meetings between developers and landowners.



MATL Groundbreaking with then CEO Johan Van't Hof speaking

"Time and again we found the need for counsel, guidance and advice and found such to be invaluable in the Energy Promotion and Development Division"

-Johan Van't Hof, CEO of initial MATL developer Tonbridge

Wind

- **Generating Capacity (2005)-1MW**
- **Generating Capacity (2011)-386 MW**
- **Generating Capacity(2012)-647 MW**
- **Permanent jobs-86**
- **Capital Investment \$1.4 billion**



Judith Gap Wind Farm

Montana leads the nation in wind energy power potential and the state is at the center of North America's wind heartland. Wind energy is clean and renewable and provides the green complement to Montana's world-class reserves of coal as well as oil and natural gas. Much of Montana's wind has yet to be tapped and represents a great investment opportunity.

Project Spotlight

Glacier and Rim Rock Wind Farms

- **Capacity-399 MW**
- **Construction Jobs- 600**
- **Permanent Jobs- 50-60**
- **Capital Investment-\$950 million**



Glacier Wind Farm

EPDD Assistance

- Assisted with regulatory issues including CPUC and securing transmission capacity and financing

"The support that we have received from the Energy Promotion and Development Division has greatly facilitated our accomplishments on these two wind farm projects and our progress would not have been as smooth or as timely as it has been without the Division's capable assistance."

-Jose Maria Sanchez Seara, CEO, NaturEner

Hydro

- Existing hydroelectric dams-40
- Generating Capacity-2,590 MW
- Percentage of electricity from hydro-42%



Canyon Ferry Dam, Missouri River, MT

For more than 100 years, hydroelectric facilities have lit homes and powered businesses in Montana. The electricity generated at Montana's dams is affordable, clean, and dependable. New techniques, such as utilizing existing drops on irrigation canals, and technologies, like using more efficient turbines at existing dams, have been responsible for Montana's increased production from hydroelectric facilities in recent years.

Project Spotlight

Turnbull Hydro

- **Capacity-13 MW**
- **Capital Investment-\$10 million**

The Turnbull Hydroelectric project utilizes existing drops in a canal in the Greenfields Irrigation District to generate electricity without any impact to irrigation users. Greenfields is a partner in the project and intends to use profits generated for upgrades to their existing ditches and canals. The output from the project is sold to NorthWestern Energy to meet their Renewable Portfolio Standard requirements.

EPDD Assistance

- Facilitated discussions with developer and state and federal agencies to overcome water right problems



Turnbull Hydro under construction near Fairfield

"EPDD's guidance and counsel helped us identify a clear path to resolving our water rights issues that had the potential to delay and potentially kill the project."

-Ted Sorenson, President, Turnbull Hydro LLC

Geothermal

- Total Geothermal Development areas-At least 50
- Total High-Temperature Sites-At least 15
- Surface Temperature at Seven Sites 150 degrees
- Estimated Deep-Reservoir Temperature 350 degrees
- *Montana citizens have long enjoyed the benefits of geothermal energy. Hot springs tucked away in the Rockies and eastern plains have provided a welcome heat source during Montana's colder months. These geologic features are part of a far greater energy source that is arguably Montana's most underestimated energy source and could provide clean, renewable base load electricity.*



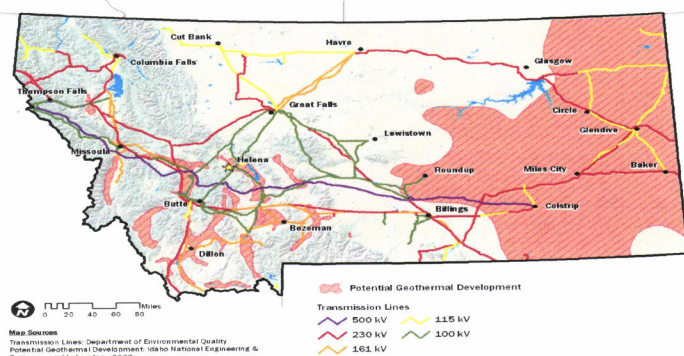
Dewhurst - Warm Springs aeromagnetic assessment, 2012

Project Spotlight

Dewhurst Group

- The State of Montana has participated in a geothermal exploration and feasibility study for developing a commercial scalable, community-based, and low temperature geothermal power plant near Warm Springs. The Dewhurst Group employed the use of advanced exploration techniques including aeromagnetics and magnetotelluric surveys.

Geothermal Power & Resources



Bioenergy

- Acres available for oilseed Production-16.5 million
- Non-reserved forest land-19 million acres
- Rank for safflower production-2nd
- Rank for canola production-3rd



Algae AquaCulture Technology, Columbia Falls

The continued expansion of biofuel and biomass energy projects is an important component of Montana's official energy policy, which encourages the development of *"biomass plants to generate heat for industrial use, electricity, or both, and as a means to manage Montana's forests"*.

Project Spotlight

Montana Biomass Feasibility Studies

The Energy Promotion and Development Division issued a request for proposals to conduct studies on the feasibility of developing woody biomass energy generation plants in Montana. This resulted in two comprehensive studies to assist private industry with investment decisions.

Developing a Business Case for Sustainable Biomass Generation: A Regional Model for Western Montana

Final Report
June 1, 2010

This study prepared under a contract with the Montana Department of Commerce, Energy Promotion and Development Division, with additional support from Northwestern Energy & Montana Community Development Corporation



Energy Storage

The electrical storage market is expected to expand significantly from 2012-2016 due to increased penetration of variable renewable electrical generation.



Zinc Air Battery

Project Spotlight

Zinc Air

Zinc Air Inc. is one Montana company looking to serve the emerging energy storage industry through their innovative and scalable technology. Zinc Air has been steadily growing since their inception in 2009 and, as of December 2012, employs 45 people in the Flathead Valley.

- *"The Energy Promotion and Development Division consistently provides valuable support to Zinc Air in its efforts to develop our battery storage technology business in Kalispell. The capable staff at EPDD has always promptly responded to our requests for guidance with useful information and they have steered us to funding programs available in the Department of Commerce, as well as other programs, that have helped our business grow."*

- Craig Wilkins, Vice President, Zinc Air

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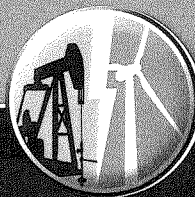
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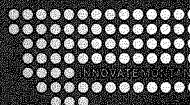
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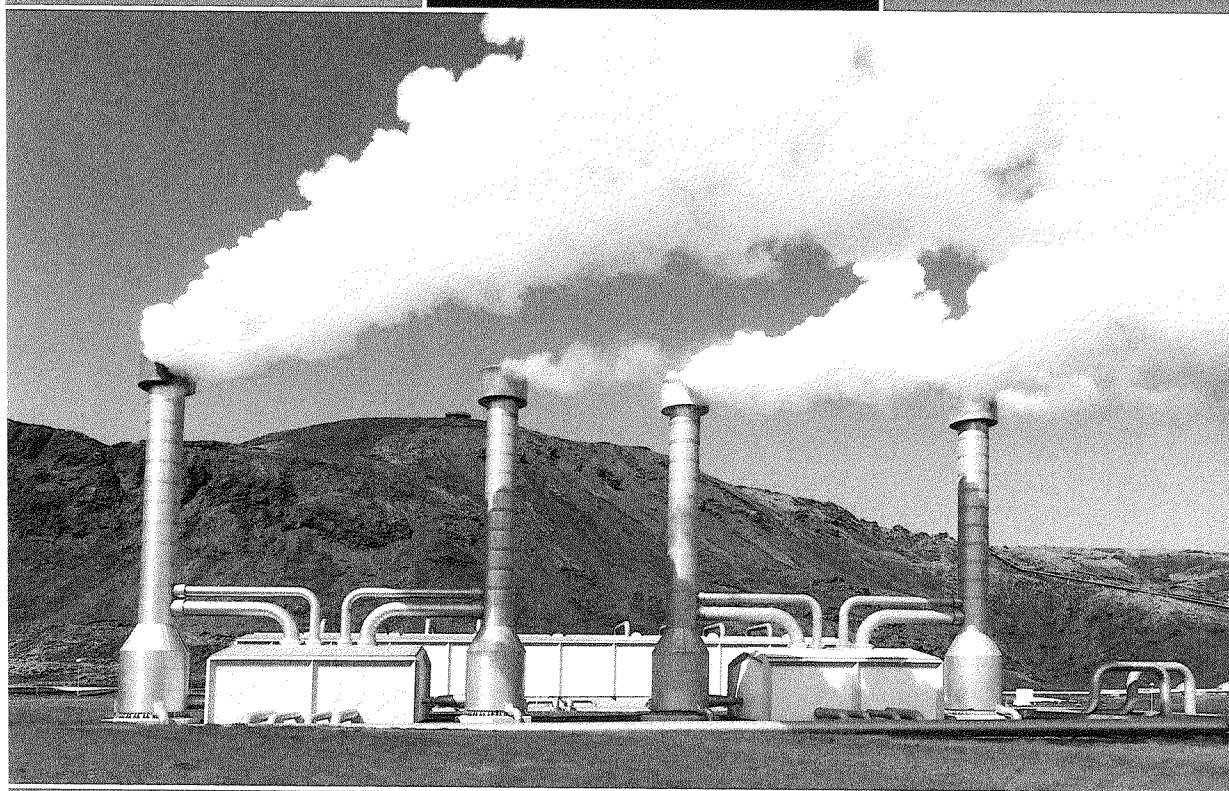
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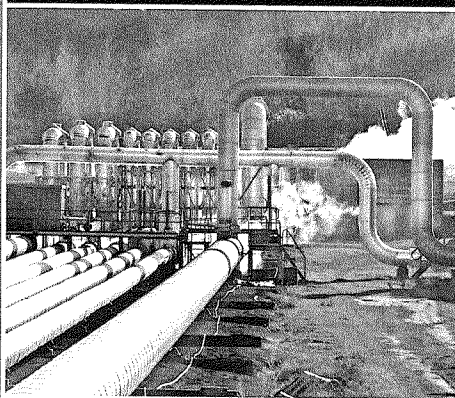


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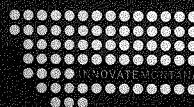
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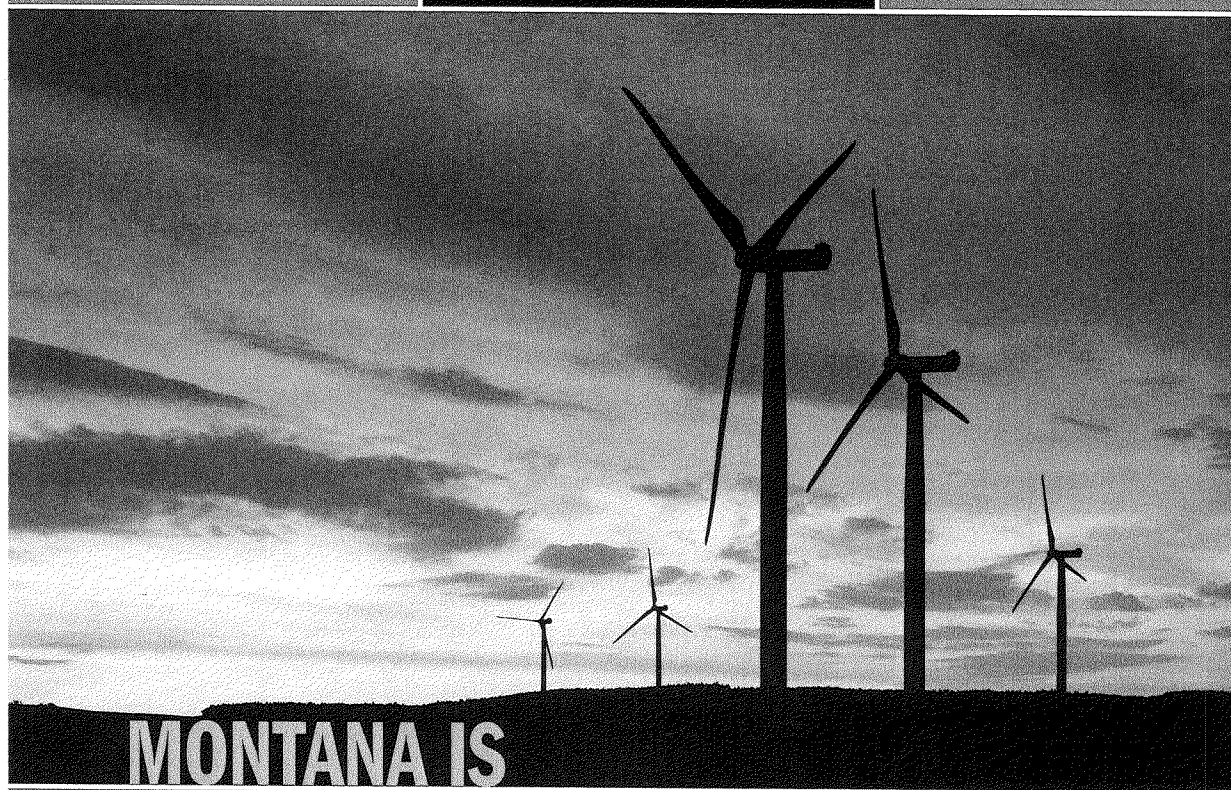
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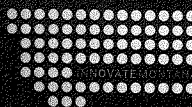
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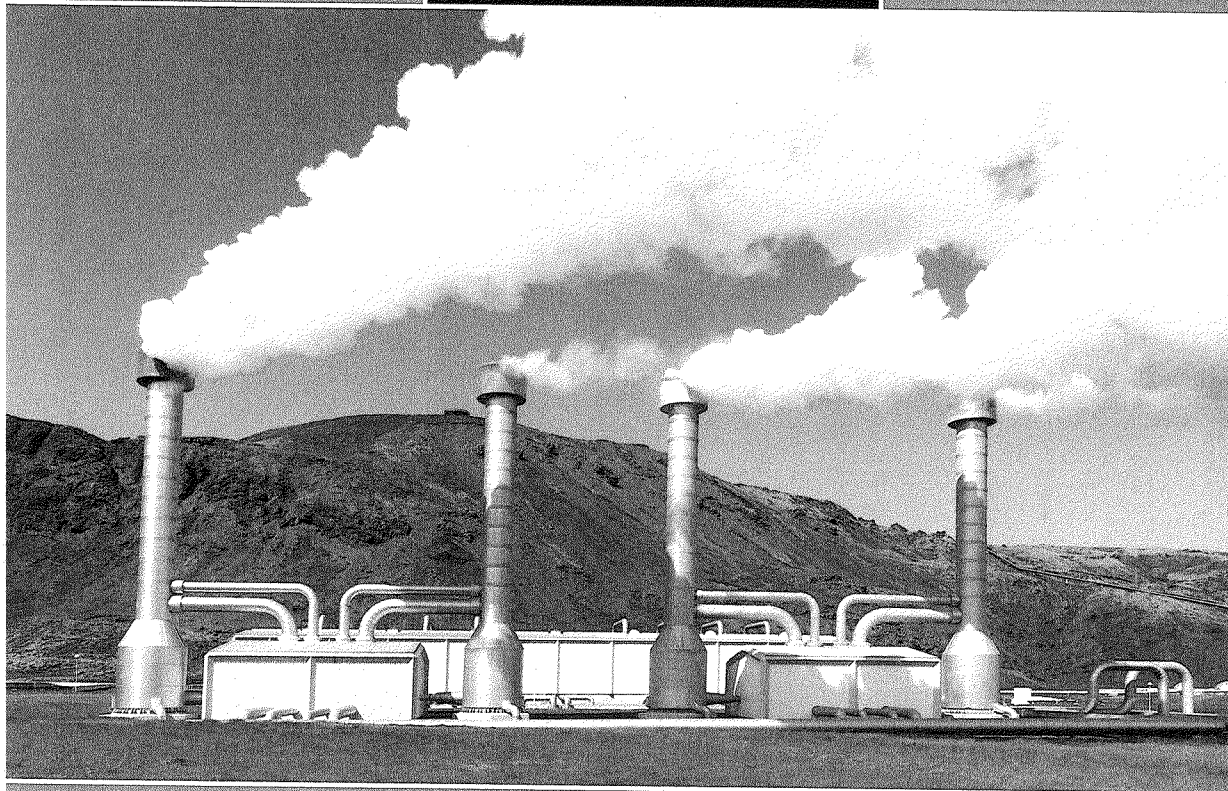
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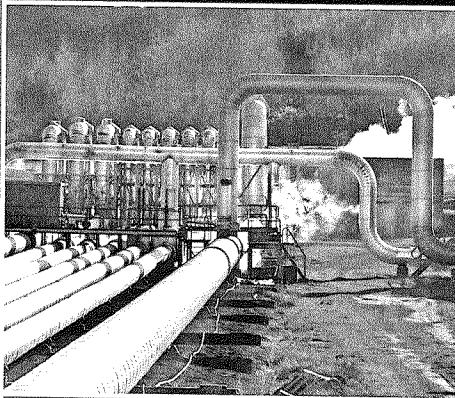


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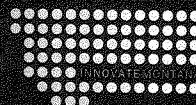
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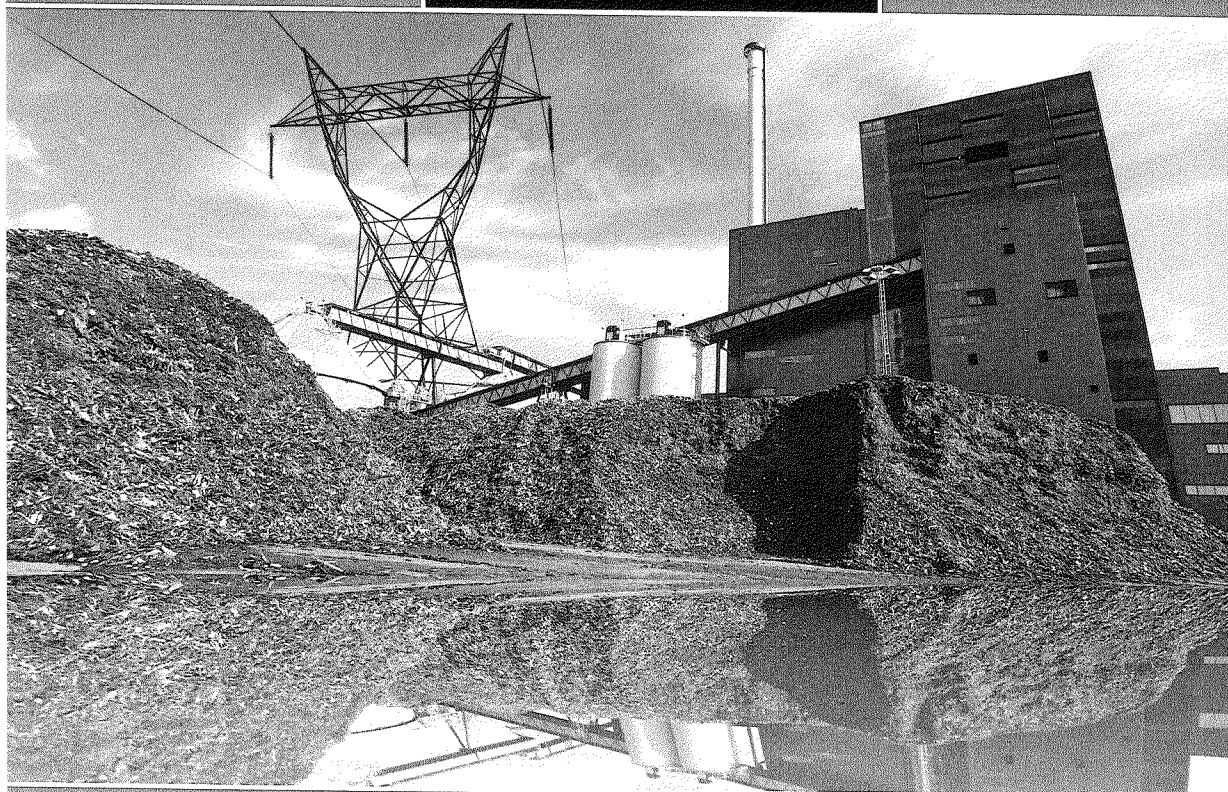
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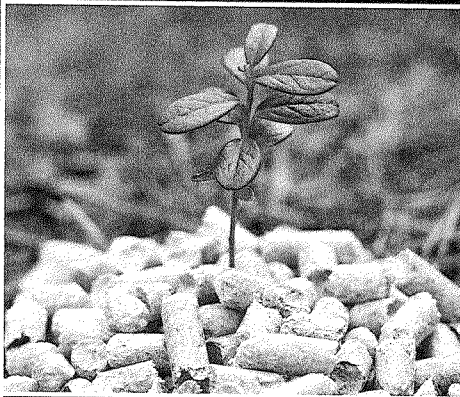


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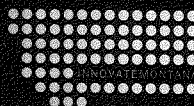
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